

NAME: _____

DATE: _____

Mastery Assessment of Unit 2 (Practice version 106)**Question 1**

Let f represent a function. If $f[44] = 32$, then there exists a knowable solution to the equation below.

$$y = \frac{f[2x + 24]}{8} + 30$$

Find the solution.

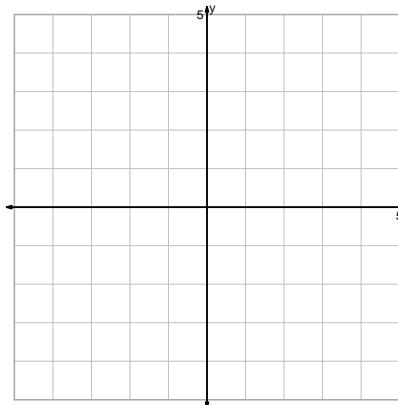
$x =$

$y =$

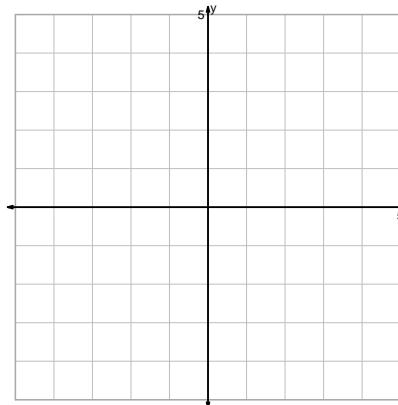
Question 2

Graph the equations accurately. For each integer-integer point on the parent, indicate the corresponding point precisely. Also, with dashed lines, indicate any asymptotes.

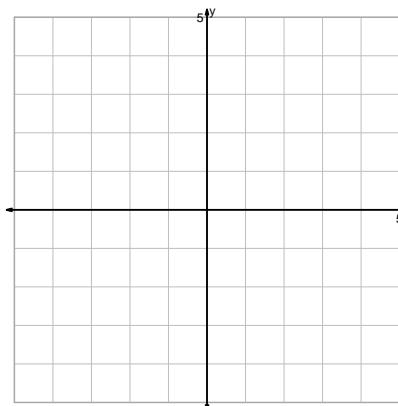
$$y = \sqrt{-x}$$



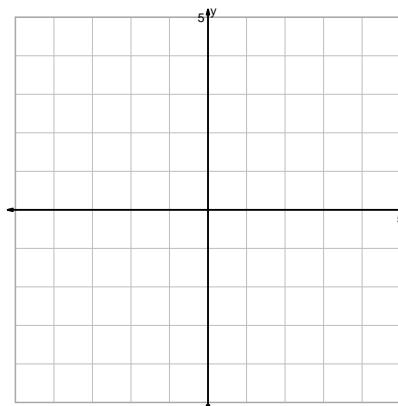
$$y = (x - 2)^2$$



$$y = x^3 + 2$$

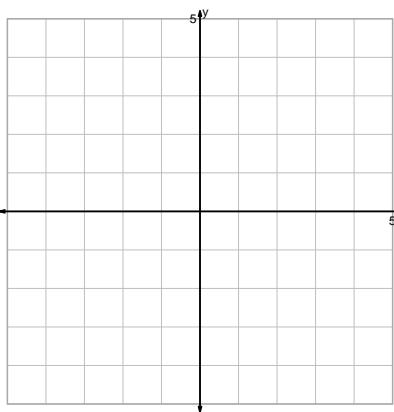


$$y = \frac{x^2}{2}$$



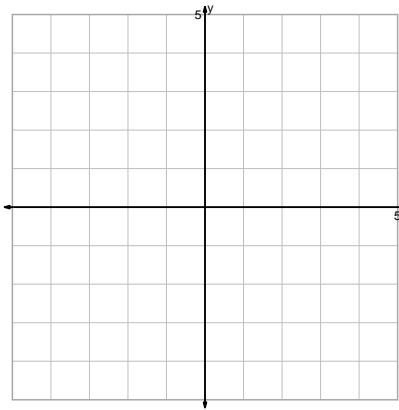
Question 2 continued...

$$y = -\log_2(x)$$



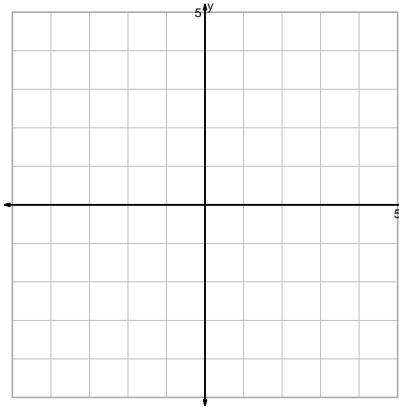
$$y = \log_2(2x)$$

$$y = 2^x - 2$$

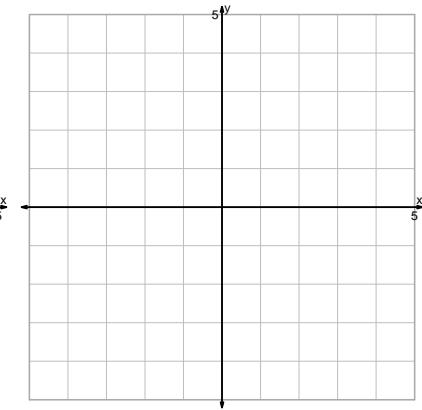
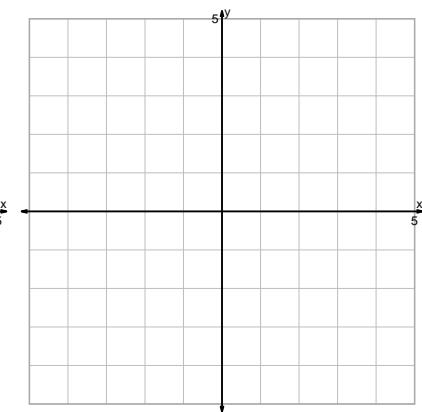


$$y = \sqrt{\frac{x}{2}}$$

$$y = 2 \cdot \sqrt[3]{x}$$

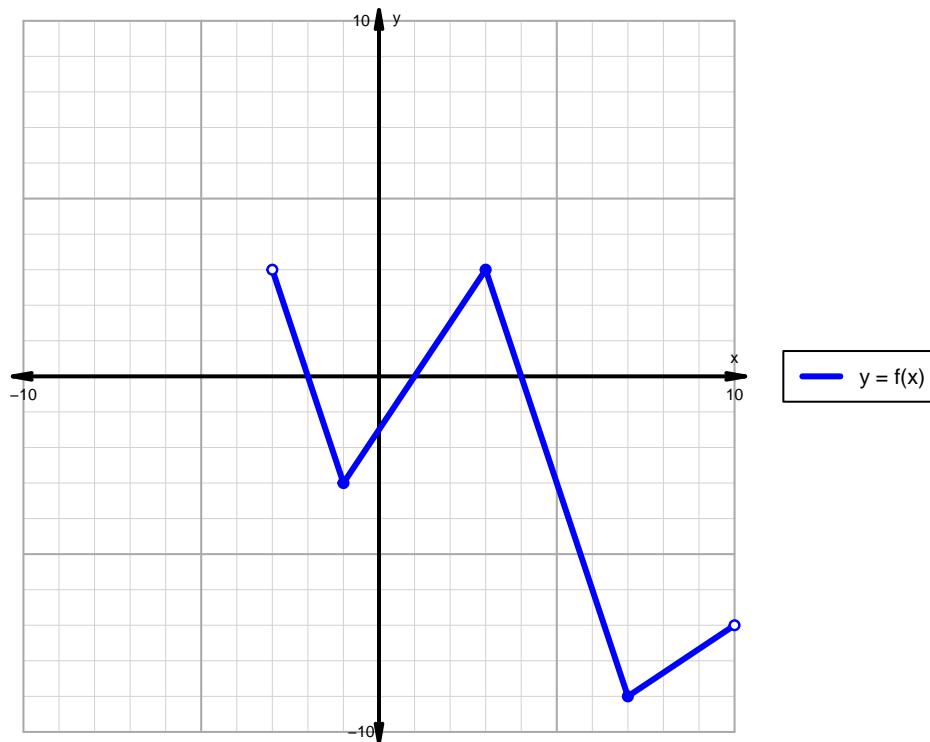


$$y = (x+2)^3$$



Question 3

A function is graphed below.



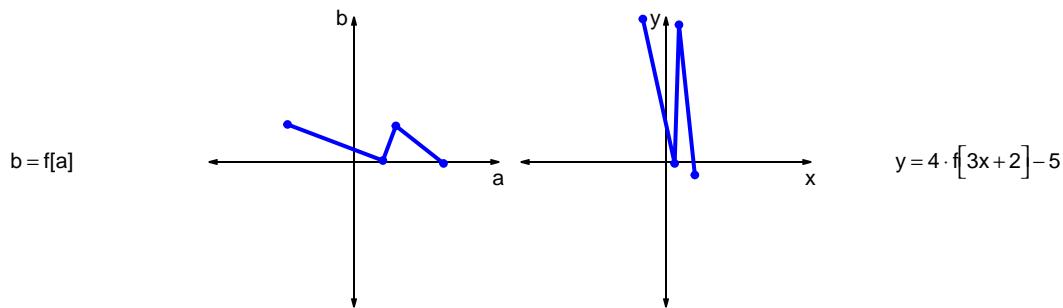
Indicate the following intervals using interval notation.

Feature	Where
Positive	
Negative	
Increasing	
Decreasing	
Domain	
Range	

Question 4

Let f represent a function. The curves $b = f[a]$ and $y = 4 \cdot f[3x + 2] - 5$ are represented below in a table and on graphs.

a	b	x	y
-46	26	-16	99
20	1	6	-1
29	25	9	95
62	-1	20	-9



- a. Write formulas for calculating x from a and calculating y from b . (Or, write the coordinate transformation formula.)

b. What geometric transformations (using words like translation, stretch, and shrink), and in what order, would transform the first curve $y = f[x]$ into the second curve $y = 4 \cdot f[3x + 2] - 5$?

Question 5

A parent square-root function is transformed in the following ways:

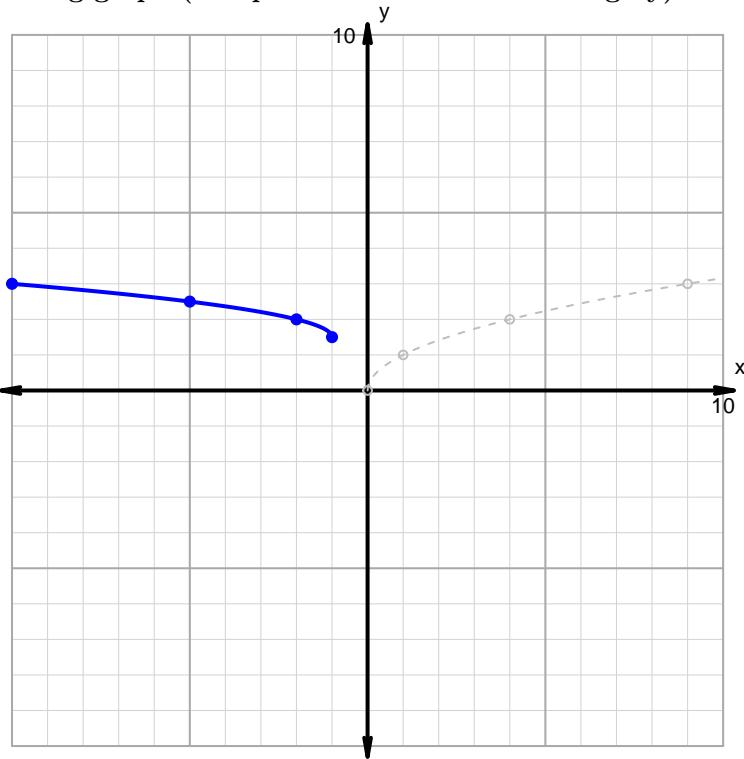
Horizontal transformations

1. Horizontal reflection over y axis.
2. Translate left by distance 1.

Vertical transformations

1. Translate up by distance 3.
2. Vertical shrink by factor 2.

Resulting graph (and parent function in dashed grey):



- What is the equation for the curve shown above?

Question 6

Make an accurate graph, and describe locations of features.

$$y = \frac{-1}{2} \cdot |x - 7| + 1$$



Feature	Where
Domain	
Range	
Positive	
Negative	
Increasing	
Decreasing	